

*Homo ergaster***Turkana Boy**

A new species evolved in Africa about 1.8 million years ago. This hominid was possibly a descendant of *Homo habilis* and lived at the same time as some australopithecines.

Turkana Boy is a nearly complete (about 80%) skeleton of *Homo ergaster*. Compared to earlier hominids, this fossil showed a larger cranial capacity (indicating brain size), smaller face and grinding teeth, more of a nasal bridge, and thicker skull bones.

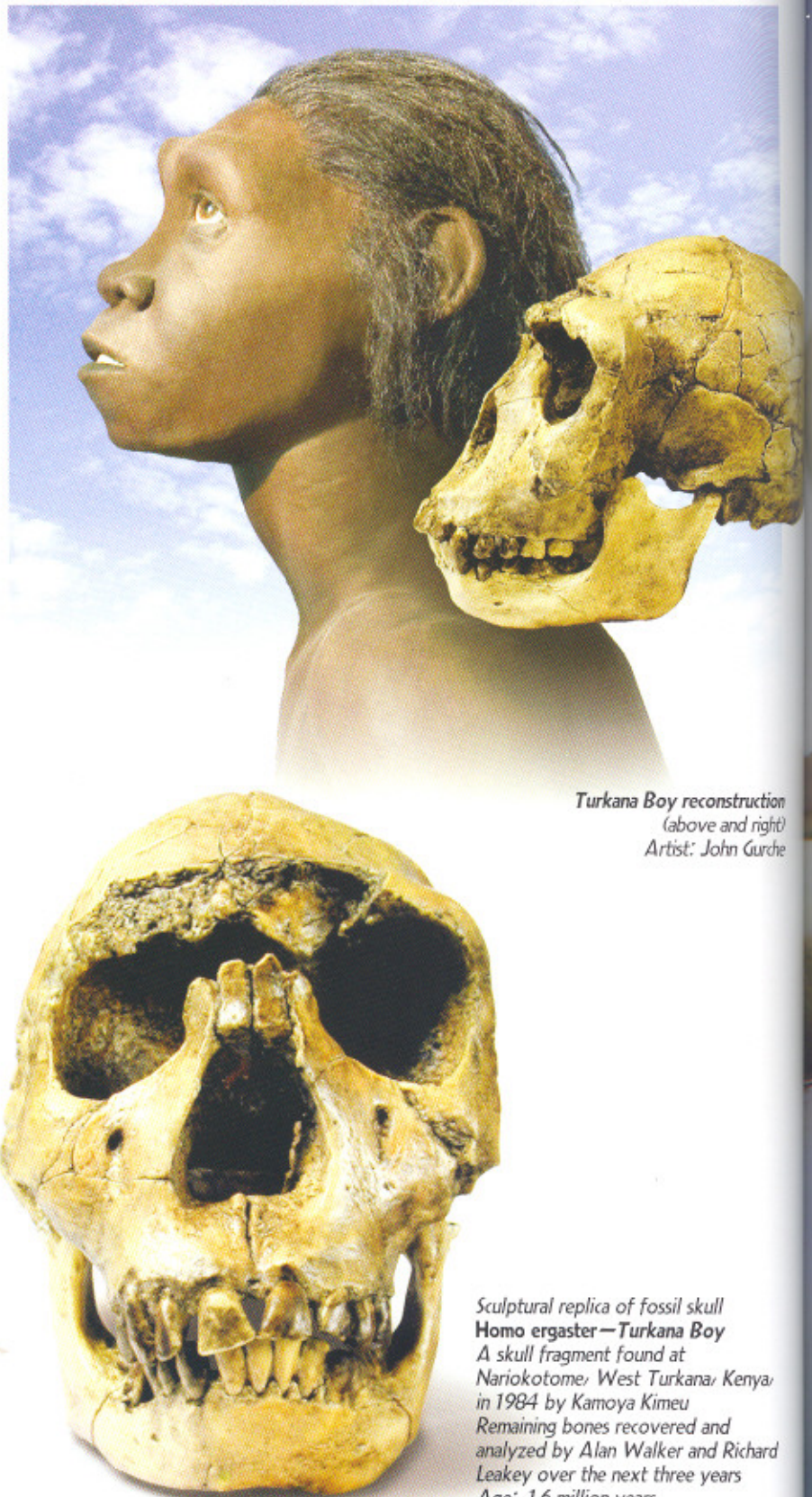
Turkana Boy was about 8 years old—scientists can tell from his teeth. Judging by the shape of his pelvis and the size of other bones, he was male. His epiphyses (ends of long bones) were not fully developed, so he still had some growing to do. He was about 5 feet 4 inches tall when he died. If he had lived to adulthood, he would have grown to be 6 feet tall. He represents the tallest hominid species found until modern *Homo sapiens*. Turkana Boy lived in a warm climate very much like that of today's East Africa where he was found.

**Migration: Out of Africa**

*Homo ergaster* evolved in Africa, but by 1.8 million years ago members of the *Homo* species had arrived in Europe and Asia. The species in Asia is called *Homo erectus*. One beneficial adaptation may have been a larger nose, with circulation that helped reduce water loss in warm climates and conserve heat in colder regions.

**Fire: A major advance**

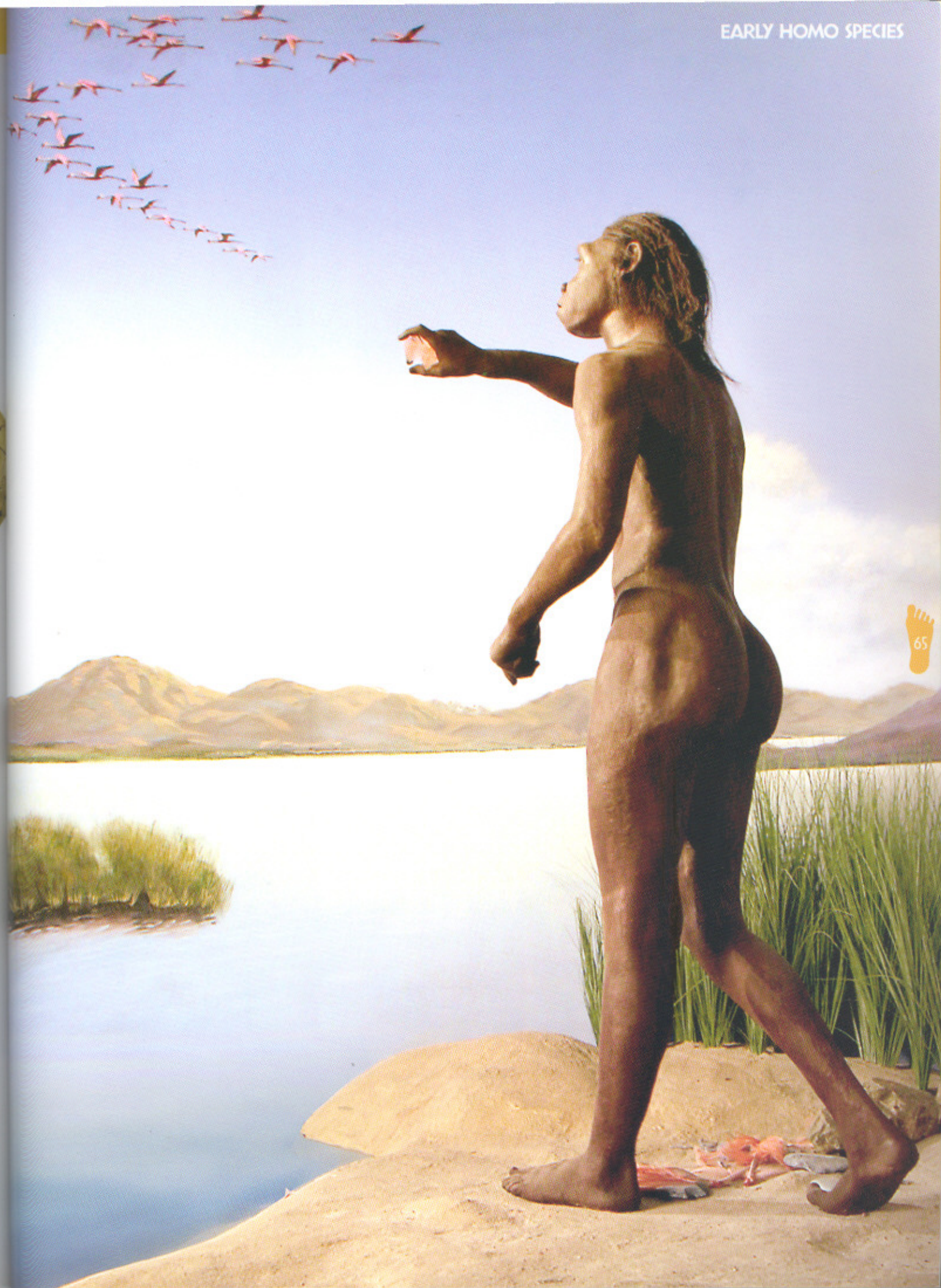
It has been difficult to pinpoint when humans controlled fire. *Homo ergaster* often gets the credit, because fire was probably useful in migrating out of Africa. Two discoveries in the 1980s may provide early evidence of the control of fire: burned day in association with stone tools and animal bones dated 1.4 million years ago in Kenya and charred animal bones dated from 1.3 to 1 million years ago in South Africa. With the mastery of fire, hominids were able to travel long distances, live in cold regions, protect themselves from predators, and eat a wider variety of foods.



*Turkana Boy* reconstruction  
(above and right)  
Artist: John Gurche

Sculptural replica of fossil skull  
***Homo ergaster*—Turkana Boy**  
A skull fragment found at  
Nariokotome, West Turkana, Kenya,  
in 1984 by Kamoya Kimeu.  
Remaining bones recovered and  
analyzed by Alan Walker and Richard  
Leakey over the next three years.  
Age: 1.6 million years







## The Turkana Boy—KNM-WT 15000

It was fitting that during the boy's final moments his retinas held the image of birds in flight. His lifelong fascination with birds, movement, and distances had been difficult for his mother to understand. The strangest part was that he didn't want to kill the birds and eat them, but was satisfied to simply gaze after them as they winged overhead, out over the water, and into the distance. When the boy's abscessed tooth worsened into a systemic infection, he became delirious with fever and tried to follow a flock of flamingos into the swamp. When the water reached his waist he lost consciousness and fell forward into the water.

This is how I imagine the last moments in the life of the *Homo ergaster* boy who has come to be known as KNM-WT 15000 or just "the Turkana boy" to his descendants of a million and a half years into his future. When we use art to visualize a long-dead human ancestor, we first listen to what the bones have to tell us, and this incredibly complete skeleton has had much to say. But to complete the picture we invent a plausible fiction which is based on the scientific evidence. The imagined last moments of the Turkana boy are part of the process of inventing a fiction which is consistent with and representative of what we have learned from the boy's skeleton.

And we've learned a lot from this 1.6-million-year-old skeleton. Rarely has so much information been squeezed from a fossil skeleton. In a volume that is a tribute to creativity in science, Alan Walker, Richard Leakey, and a team of young scientists were able to address issues of climatic adaptation and body proportions, language and brain evolution, the birth process, life history (meaning the timing of developmental phases), body size and sexual dimorphism, the switch from a mostly herbivorous

diet to one incorporating carnivory, and changes in home range size, adaptation to long distance travel, and migration out of Africa.

When asked by the Museum of Man to create a sculpted reconstruction of the Turkana boy, I decided to try to represent several of the most important issues in the sculpture. What to have him doing? I wanted the sculpture to represent what we've learned about the boy's species, *Homo ergaster* (some scientists call both African and Asian members of this species *Homo erectus*). With the origin of *Homo ergaster* we see the arrival of a number of features that suggest a new way of using the landscape. The long legs characteristic of all later hominids appear at this point, suggesting the striding gait of a creature that is capable of covering lots of ground.

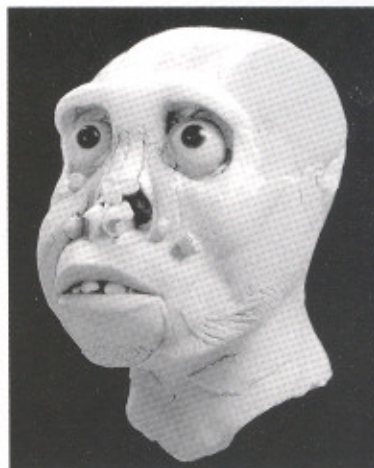
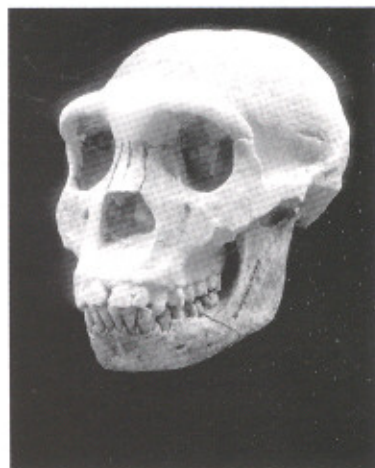
The switch from a mainly herbivorous diet to one incorporating carnivorous habits is signaled earlier (at 2.5 million years before the present) in the archaeological record by the appearance of butchery sites, with cut-marked animal bones in association with stone tools. Carnivorous animals generally need larger home ranges than do herbivores, and the evolution of long legs nearly two million years ago is probably related to this shift (if a bit of a delayed reaction). Increased body size with the



John Gurche installing Turkana Boy in  
Footsteps Through Time







The first two stages of the making of Turkana Boy

appearance of *Homo ergaster* would also have required a larger home range. On its daily route or in the movement of populations, this was a hominid who traveled.

Another uniquely human feature, the projecting nose, originates at this time. What could be the function of this bizarre (by the standards of other primates) growth in the middle of our faces? The projecting nose creates turbulent air flow over membranes which are

cooler than the body's core temperature as air is inhaled and exhaled. As an exhaled breath passes over these cooler surfaces, water vapor in the moisture-saturated air from the lungs condenses on the membranes instead of being lost to the environment as it would from the nostrils of an ape or an australopithecine, which are basically two tunnels straight into a flat surface. The moisture is thus conserved, and it humidifies the next incoming breath for optimum lung function. The newly evolved nose of *Homo ergaster* seems to be an adaptation for moisture retention while moving over hot, dry landscapes. Unlike previous hominids, this species was less constrained to habitats near bodies of water.

Before there was any direct evidence of which species left Africa first, early African *Homo ergaster* was thought by many scientists to be the best candidate.

Then, in the 1990s, a mandible and two crania were discovered in sediment 1.75 million years old at the Georgian site of Dmanisi. The taxonomic verdict? *Homo ergaster*.

I wanted to deal with these issues in the creation of the Turkana boy sculpture. We can see that he has proportions that look human (specifically those of a tropical human). The anatomical adaptations to long distance travel, sometimes through hot, dry areas would be apparent in his long legs and projecting nose, and some ideas of the degree to which his brain resembled ours might be reflected in the size of his head and in the expression in his eyes. But what should I have him doing that would best represent these issues? I considered many scenarios, and ultimately decided to have him gaze across a body of water at a land mass on the other side. In my imaginings he became the boy in the paragraph that opens this essay. He is releasing flamingo feathers into the wind and watching as the wind carries them out over the water. As an underscoring of the themes of population movement and migration, we see a flock of birds flying in the distance. Perhaps his is the first species to wonder: "What is over there?"

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